LIST OF CONTENTS

Number 1

T. D. Karapantsios, S. V. Paras and A. J. Karabelas	1	Statistical characteristics of free falling films at high Reynolds numbers
A. Ying and J. Weisman	23	The relationship between interfacial shear and flow patterns in vertical flow
K. Tsuchiya, T. Miyahara and L.-S. Fan	35	Visualization of bubble–wake interactions for a stream of bubbles in a two-dimensional liquid–solid fluidized bed
A. Tapucu, A. Teyssedou, N. Troche and M. Merilo	51	Pressure losses caused by area changes in a single-channel flow under two-phase flow conditions
A. Teyssedou, A. Tapucu, M. Geçkinli and M. Merilo	65	Axial void distribution in two laterally interconnected channels with blockages
W. G. Gray and S. M. Hassanizadeh	81	Averaging theorems and averaged equations for transport of interface properties in multiphase systems
J. L. Castillo and D. E. Rosner	97	Theory of surface deposition from a binary dilute vapor-containing stream, allowing for equilibrium condensation within the laminar boundary layer
M. A. Rizk and S. E. Elghobashi	119	A two-equation turbulence model for dispersed dilute confined two-phase flows
	I	Announcement

Number 2

A. Pistiner, M. Shapiro and H. Rubin	135	Analysis of fuel pollutant migration in water flow through porous media
B. Oesterlé	155	Internal kinetic transfers in the dispersed phase of a low concentration suspension flow
V. C. Kelessidis and A. E. Dukler	173	Modeling flow pattern transitions for upward gas–liquid flow in vertical concentric and eccentric annuli
A. Wildgen and J. Straub	193	The boiling mechanism in superheated free jets
Z. Ruder, P. J. Hanratty and T. J. Hanratty	209	Necessary conditions for the existence of stable slugs
G. P. Celata, N. Cumo, G. E. Farello and T. Setaro	227	The influence of flow obstructions on the flooding phenomenon in vertical channels

M. Wadle	241	A new formula for the pressure recovery in an abrupt diffusor
G. J. Hwang and **H. H. Shen**	257	Modeling the solid phase stress in a fluid–solid mixture
S. S. Gokhale and **T. K. Bose**	269	Reacting solid particles in one-dimensional nozzle flow
Brief Communications		
R. A. Gore and **C. T. Crowe**	279	Effect of particle size on modulating turbulent intensity
A. H. Govan	287	A simple equation for the diffusion coefficient of large particles in a turbulent gas flow
	I	Book review
	II	Announcements

Number 3

ANNULAR AND DISPERSED FLOWS

B. J. Azzopardi	v	Foreword
K. Sekoguchi and **M. Takeishi**	295	Interfacial structures in upward huge wave flow and annular flow regimes
A. H. Govan, G. F. Hewitt, D. G. Owen and **G. Burnett**	307	Wall shear stress measurements in vertical air–water annular two-phase flow
D. M. Jepson, B. J. Azzopardi and **P. B. Whalley**	327	The effect of gas properties on drops in annular flow
T. Sawai, S. Yamauchi and **S. Nakanishi**	341	Behavior of disturbance waves under hydrodynamic non-equilibrium conditions
F. K. Wasden and **A. E. Dukler**	357	Numerical investigation of large wave interactions on free falling films
L. A. Jurman, K. Bruno and **M. J. McCready**	371	Periodic and solitary waves on thin, horizontal, gas-sheared liquid films
V. Kefer, W. Köhler and **W. Kastner**	385	Critical heat flux (CHF) and post-CHF heat transfer in horizontal and inclined evaporator tubes
V. I. Milashenko, B. I. Nigmatulin, V. V. Petukhov and **N. I. Trubkin**	393	Burnout and distribution of liquid in evaporative channels of various lengths
T. Fukano and **A. Ousaka**	403	Prediction of the circumferential distribution of film thickness in horizontal and near-horizontal gas–liquid annular flows

Y. Hagiwara, E. Esmaeilzadeh, H. Tsutsui and **K. Suzuki**	421	Simultaneous measurement of liquid film thickness, wall shear stress and gas flow turbulence of horizontal wavy two-phase flow
G. A. Kallio and **M. W. Reeks**	433	A numerical simulation of particle deposition in turbulent boundary layers
R. T. Lahey Jr and **K. Ohkawa**	447	An experimental investigation of phase distribution in an eccentric annulus
M. M. Lee, T. J. Hanratty and **R. J. Adrian**	459	The interpretation of droplet deposition measurements with a diffusion model
A. H. Govan, G. F. Hewitt and **C. F. Ngan**	471	Particle motion in a turbulent pipe flow

Number 4

J. M. Saiz-Jabardo and **J. A. Bouré**	483	Experiments on void fraction waves
D. Barnea and **L. Shemer**	495	Void fraction measurements in vertical slug flow: applications to slug characteristics and transition
N. Brauner	505	Modelling of wavy flow in turbulent free falling films
J. E. Koskie, I. Mudawar and **W. G. Tiederman**	521	Parallel-wire probes for measurement of thick liquid films
K. Bruno and **M. J. McCready**	531	Processes which control the interfacial wave spectrum in separated gas–liquid flows
E. E. Adams and **R. L. Brown**	553	A constitutive theory for snow as a continuous multiphase mixture
J. Kitscha and **G. Kocamustafaogullari**	573	Breakup criteria for fluid particles
E. Loth and **G. M. Faeth**	589	Structure of underexpanded round air jets submerged in water
A. Teyssedou, A. Tapucu, M. Geçkinli and **M. Merilo**	605	Axial mass flow distribution in two laterally interconnected channels with blockages
G. Barnocky and **R. H. Davis**	627	The lubrication force between spherical drops, bubbles and rigid particles in a viscous fluid
M. Ozawa, K. Akagawa and **T. Sakaguchi**	639	Flow instabilities in parallel-channel flow systems of gas–liquid two-phase mixtures
H. Nasr-El-Din, A. Afacan and **J. H. Masliyah**	659	Solids segregation in slurry flow through a T-junction with a horizontal approach

Letters to the Editor

R. H. Davis 673 Hydrodynamic dispersion in sedimenting systems

C. J. Crowley 675 Discussion of the slug-to-annular flow pattern transition for microgravity conditions

A. E. Dukler 677 Response

I Book Review

II Announcements

Number 5

KATTO FESTSCHRIFT

G. Hetsroni vii To Professor Y. Katto on the occasion of his 65th birthday

K. Nishikawa ix Foreword

I. Michiyoshi and **A. Serizawa** 679 Two-phase flow studies in Japan

G. Hetsroni 735 Particles–turbulence interaction

M. Osakabe and **Y. Kawasaki** 747 Top flooding in thin rectangular and annular passages

Y. Sudo and **M. Kaminaga** 755 A CHF characteristic for downward flow in a narrow vertical rectangular channel heated from both sides

N. Takenaka, T. Fujii, K. Akagawa and **K. Nishida** 767 Flow pattern transition and heat transfer of inverted annular flow

M. M. Lee, T. J. Hanratty and **R. J. Adrian** 787 An axial viewing photographic technique to study turbulence characteristics of particles

M. Monde and **Y. Mitsutake** 803 Enhancement of heat transfer due to bubbles passing through a narrow vertical rectangular channel

J. H. Masliyah, H. Nasr-El-Din and **K. Nandakumar** 815 Continuous separation of bidisperse suspensions in inclined channels

H. Takahashi, T. Masuyama and **K. Noda** 831 Unstable flow of a solid–liquid mixture in a horizontal pipe

I. Kataoka and **A. Serizawa** 843 Basic equations of turbulence in gas–liquid two-phase flow

I Announcements

Number 6

V. E. Nakoryakov, V. V. Kuznetsov and **V. E. Dontsov** — 857 Pressure waves in saturated porous media

N. Andritsos, L. Williams and **T. J. Hanratty** — 877 Effect of liquid viscosity on the stratified–slug transition in horizontal pipe flow

S. A. Schadel and **T. J. Hanratty** — 893 Interpretation of atomization rates of the liquid film in gas–liquid annular flow

E. Dueymes — 901 Wet steam flows in industrial large-diameter pipes: flowrate, moisture and pressure drop measurements

A. Biesheuvel and **S. Spoelstra** — 911 The added mass coefficient of a dispersion of spherical gas bubbles in liquid

J. S. Seo and **S. G. Bankoff** — 925 Entrainment and condensation effects in the upward acceleration of a liquid column

P. Andreussi and **K. Bendiksen** — 937 An investigation of void fraction in liquid slugs for horizontal and inclined gas–liquid pipe flow

J. Hart, P. J. Hamersma and **J. M. H. Fortuin** — 947 Correlations predicting frictional pressure drop and liquid holdup during horizontal gas–liquid pipe flow with a small liquid holdup

S. T. Hwang, H. M. Soliman and **R. T. Lahey Jr** — 965 Phase separation in impacting wyes and tees

N. Coutris, J. M. Delhaye and **R. Nakach** — 977 Two-phase flow modelling: the closure issue for a two-layer flow

E. L. Hanzevack and **G. D. Demetriou** — 985 Effect of velocity and pipeline configuration on dispersion in turbulent hydrocarbon–water flow using laser image processing

T. F. Lin, J. F. Jou and **C. H. Hwang** — 997 Turbulent forced convective heat transfer in two-phase evaporating droplet flow through a vertical pipe

Brief Communication

R. Pal and **E. Rhodes** — 1011 Emulsion flow in pipelines

I Book Review

III Announcements